

B.A.R.G. NEWS

Official Newsletter of the Ballarat Amateur Radio Group. Inc. #6953T

ABN 44 247 200 143

VOLUME 27 ISSUE 8 AUGUST 2004

PRESIDENT: Gordon Cornell VK3FGC SECRETARY: John Kennedy VK3AIG TREASURER: Bob Terrill VK3BNC

NEXT MEETING - **FRIDAY 27 AUGUST 2004**
At 7.30 pm

FROM THE PRESIDENT/EDITOR

This is my last edition as the president of the Club, but unless some one volunteers to become news letter editor for next year, you may be stuck with me as editor for the next twelve months. This news letter is some what shorter in news as I have been away in Canberra (to see my new grandson) then onto Queensland for a holiday so have missed much of the month's news. I would like to thank those members who have helped with articles (Craig VK3CMC), David (VK3UR) for his technical help at times and for distribution by e-mail and Norm (VK3LBA) for the distribution of posted edition. Without them distribution would often be later than required.

DATES

Club meetings the last Friday each month starting at 7.30 pm

COMMITTEE please note that meetings (3rd Wednesday in the month) will also start at 7.30.

Construction Nights Construction nights are held on the second Monday each month at 7.30 .

WICEN Net : Tuesday nights at 9.00 pm on 3.60 MHz + QRM etc. (Some times below 3.60) and after the net closes, a short check in on 40M at an agreed freq.

Club Directory Correction. Please amend your Club Directory by, in the entry for Gordon Yorke (VK3ABI) Delete "4 Ferndale Terrace " and insert "4 Fernleigh Terrace"

ANNUAL REPORT of BALLARAT AMATEUR RADIO GROUP (Inc.)

2003/4

Members, it is with pleasure that I present the annual report for the Ballarat Amateur Radio Group (Inc.) for the year ending 30 June 2004

Membership: This year has seen a small increase in Club membership which now stands at 47

But there are a lot of amateurs in our area who are possible members and the committee intends to address.

Construction Nights: This has been a welcome addition to our activities meeting once a month on Monday nights. Projects included building a 2 m Yagi sniffer antennae and attenuator which were tested with success one night. The major project was the building of "screw driver" HF aerials. These have created much interest in our areas with other clubs, amateur and WICEN showing interest in building them.

Education & Exams: This year was a disappointment, in that it is the first year for as long as I can remember that we did not run a novice class. A number of members have passed exams during the year and the Club congratulates them.

Field Days: This year we took part in the John Moyle field day competition going to Linton area where we operated on HF, VHF, and UHF bands. It has been some years since the Club went "bush" for the event and it was agreed that it was a successful week end and that we should do it again next year.

Club Rooms: During the year, first we lost a large branch off the tree in front of the rooms which just missed doing damage. Then later the whole tree was destroyed in high winds and had to be removed. This makes the area look bare but we hope to have a new tree planted by the Council after the stump is removed.

The Committee has been in negotiations with the Ballarat City Council in relation to replacing the roof over the back area after which the Club intends to modify the area to put in a large roller door so that we can store a trailer etc. and other projects.

A.R.D.F. Championships: A major PR for the Club was our assistance with the ARDF Regional Championships in early December 2003 based with accommodation at the Ballarat University at Mt. Helen and competitions in the surrounding forest areas. There were international visitors from our region and we provided an HF station for the visitors to talk to their home countries. The Japanese used the station with success.

Annual Hamvention: Once again we ran a successful Hamvention and our thanks go to Ian (VK3AXH) for acting as coordinator and to members who helped to run it. The Ballarat Hamvention has a reputation of being a good event and so we must work hard each year to retain this reputation.

Conclusion: I would like to thank my committee for the work they have done during the year especially secretary John Kennedy (VK3AIG) and treasurer Bob Terrell (VK3BNC) for their assistance Ian McDonald (VK3AXH) as technical officer for his work with repeaters and Hamvention.

Congratulations to our two new life members Charlie Stewart (VK3DCS) and Bob Terrill (VK3BNC) who have been presented with their Certificates at the last AGM & during the year. May wish the incoming committee the best wishes for the coming year.

Gordon Cornell (VK3FGC)

FINANCIAL REPORT

Annual Report 2003 – 2004 General Account

Bank Reconciliation

Balance Brought Forward 1/7/03	3991.29	
Income for Year	5546.58	

Total Income		9537.87
Less Expenses	5201.33	

Sub Total	4336.54	
Plus Un-presented cheque No.138658	100.00	
Total	4436.54	
Balance at Bank 30/06/04		\$4436.54

Annual Report 2003 – 2004 BARG Assets

Cash and Bank Accounts		
Petty Cash	\$0000.00	
Convention Account	\$ 483.37	
General Account	\$4436.54	
Total Cash		\$4919.91
Other Assets		
Book Library	332.00	
Equipment	5392.00	
Total		\$10643.91
Total Assets	\$10643.91	
Liabilities	00000.00	

<u>Overall Total</u>	<u>\$10643.91</u>
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Annual Report 2003 – 2004
General Account

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Annual Report 2003 - 2004

Annual Report 2003 – 2004

General Account

Income for 2003/04

Membership		1040.00
Transfers		3000.00
Donations		120.00
Raffle		105.00
Miscellaneous		
Projects	843.70	
Call Books	210.00	
Other	3.00	
IRLP	60.00	1116.70
Auction		153.40
Bank Interest		11.48
Un-presented cheque No. 138658		100.00
Total Income		\$5646.58

Expenses

Power	242.50
Rent	600.00

Repairs to RWA		261.00	
Education		123.63	
Administration			
Consumer Affairs	35.00		
Petty Cash	100.00		
Catering	262.60		
Insurance	217.25		
Australia Post	55.00		
Web Site	88.00		
Total		757.85	
News Letter		11.50	
IRLP Costs		461.25	
Miscellaneous			
Transfer to Conv.A/c	1000.00		
Projects	801.36		
Call Books	213.30		
Badges	55.00		
Other	20.00		
John Moyle	151.74		
RWA	330.00		
Roller Door	50.00		
Total		2721.40	
Bank Charges		22.20	
Total Expenses			\$5201.33

BARG Assets

Cash and Bank Accounts			
Petty Cash	\$0000.00		
Convention Account	\$ 483.37		
General Account	\$4436.54		
Total Cash		\$4919.91	
Other Assets			
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Overall Total	\$10643.91		

DESCRIPTION OF SCREWDRIVER ANTENNA CONTROL BOX.

As the screwdriver antenna was originally constructed with a 5W series resistor of about 16R ohms the regulation of the motor wasn't always constant as the car battery volts can vary from 12Volts to 13.8V when charging. This means the actual voltage on the screwdriver motor could vary anywhere between 8.4 to 10.2 volts at nearly 2Amps. Tests conducted by Bob VK3BNC and Ian VK3AXH showed that a regulated supply with a small pass transistor and reference voltage could be substituted for the heat producing dropping resistor. A couple of club members had noticed that with a long session of antenna tuning, the resistor had started to radiate heat within the plastic screwdriver case and had affected the case and connecting wires. Although my unit did not show these signs [yet!] I decided to follow Bob and Ian's idea and put my regulator in the control box that would eventually sit in the cabin of the appropriate vehicle. The first design tried used just the 7805 regulator and a few components but as its only rated for 1Amp it soon showed signs of distress while the antenna was being tuned and a low SWR being found.

Following Bob's suggestion I used a TIP2955 as a series pass device with the 7805 giving the reference voltage and made the first "birds nest" wiring jig. This seemed to work quite well. I decided it needed to be tidied up and mounted properly. Although a simple circuit, taken from the DS catalogue and containing only a hand full of components I decided that they should be more robustly mounted than hanging off a tag strip at the back of the box.

Not having access to workshop facilities to make PCB's anymore I decided on using vero board for the connecting wire and cut away the unnecessary tracks with a scalpel/Stanley knife. After a rather ignoble start by blowing up two pass transistors I finally developed a working model. It seems that when I swapped one three legged regulator for another I failed to look up the new pin outs and of course they were different from the PCB design I had just made. Did I pick that subtle change up immediately? No I did not until later.

Just how could such a simple circuit as this not work???? After calming down and with a now rapidly approaching deadline to have the unit up and running so that it could be used the next day the device was finally installed about four hours before going away. Such relief. Anyway I can report that it works so well I have decided to produce the artwork for others to use if they wish, and as its using VERO board it is quiet easy to make the board without use of messy and corrosive chemicals in the etching process.

The whole board assembly is designed to mount using nylon [insulated] bolts inside the 120 x 67 x 40mm diecast box. Mounted on the front [lid] is a small signal meter taken from a salvaged piece of equipment and two miniature switches. The first switches on the +12V to the unit as well as a small "grain of wheat" lamp built into the meter for night operation. The second switch is a three position [centre rest] that allows the raising or lowering of the antenna. This switch has the output from the regulator [+5V] applied and actually crosses over the voltage depending whether it is to be raised or lowered. Connected across this voltage to the motor is a dual colour LED that indicates red for UP and green for DOWN.

On the reverse of the box is a four pin microphone connector that supplies the battery voltage input and the +5V regulated output voltage to the motor. I have wired a loom through the vehicles fire wall and to the antenna mount on the front bumper. As the box is metallic it is well shielded to also mount a small RF sensing detector circuit and meter but needs to have a short antenna connected, so I have used an RCA audio type chassis socket on the rear into which a small length of rigid wire is

connected and can lay along the top of the vehicles dash board. The box is mounted by a bracket and two bolts on the sides.

The attached circuit shows all electrical connections along with the RF sense circuit as its mounted in the box. Should the antenna be required on another vehicle its easier to leave the wiring harness in situ and make a second harness to fit between the antenna and the control box. The power connector to the antenna is the same four pin connector but its only wired for the +5V DC. In case the regulator should fail in the field and the antenna is fully extended I decided to leave the series resistor inside the screwdriver case and bring the pigtail out via another wire to the box on the ant that has the Balun transformer in and the connector. It is then easy to open the box in an emergency and apply +12V to this wire to lower the antenna again. To facilitate others building the regulator an overlay diagram is shown attached. Ensure that the unwanted tracks are cut and removed, especially those under the two heatsinks. As the case is at chassis earth potential I used a mica washer with heat conducting paste under both devices and a nylon bolt and nut to clamp them. Ensure the tracks under the heatsink are not connected to any part of the circuit. By doing this you don't have to remove all the copper tracks if they are not connected. I also removed the adjacent tracks between the legs of the TIP2955 completely as well.

To connect wires to the VERO board I just soldered the wire direct but small pins could be pushed through the holes and soldered but ensure the pins do not contact the metal case behind. To ensure no wire or whisker could touch the case I cut a square of electrical "gaffer tape" and stuck to bottom of case before mounting. As yet I have to make a suitable front panel label for the control box that explains switch functions and colour code meaning of the bi-colour LED.

To locate the PCB within the diecast box I used one nylon bolt and nut which is shown in the diagram adjacent to the heatsink of the 7805 regulator package. I have shaved the edge of the board to allow it to fit up one end of the box without the aluminum heatsink touching the sidewalks.

FIELD STRENGTH METER.

This is basically a simple crystal set and all components mount on a three-legged tag strip. See diagram. The placement in the box is not critical and I mounted mine in a corner and used a low profile RCA audio socket to access the outside domain. This socket was placed on the top but in hindsight this should have been on the back or bottom of the case as when a RCA plug with the TCW antenna lead is plugged in it looks odd at the top, and would be better away from the drivers[and passengers] gaze, and would allow the pick up TCW lead to be "dressed" along top of the dash board more easily. My meter was a miniature type 0-100microA or 0-1mA meter and the series adjustable R could be fixed or a small trim pot on the tag strip if desired. There is a series 10pf capacitor on the input which is just there "in case" a wandering DC voltage should get placed there and cause some damage. I tried a couple of different values to ascertain that the meter would still read RF from 80M to 10M, which it did. The length of the PU wire will also determine how sensitive the device will be and that is left to the individual operator. This particular meter had a small "grain o wheat" lamp inside and I selected a suitable resistor value in series with the lamp to allow reasonable illumination at night while driving to see that RF was being delivered to the antenna. At full illumination it would have been too distracting. The supply to the lamp is also taken from the 5V regulated side and not the full 12V supply. At this stage I have not attempted to document current levels when in use but with the heatsinking supplied the devices do not get mildly warm so that the small current being drawn by the lamp will not cause undue strain. Well I hope that may encourage others to try this modification, and to include a small Field Strength meter in the same case.

Craig Cook

VK3CMC

- Attachments.
1. Circuit and box panel layout.
 2. PCB design, FS tag strip comps and Pwr IN/Out plug conn.

CLUB INFORMATION

REPEATERS

VK3RBA	(Voice)	146.750	Mt Buninyong
VK3RWA	(Voice)	147.100	Mt Ben Nevis
VK3RPC	(Packet)	144.750	Mt Warrenheop
VK3RBU	(Voice)	438.475	

BEACON

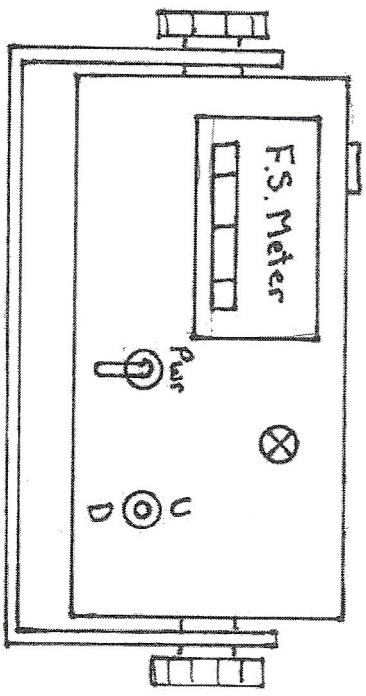
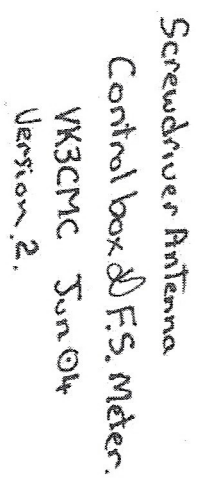
VK3RMB	438.475	Mt Buninyong
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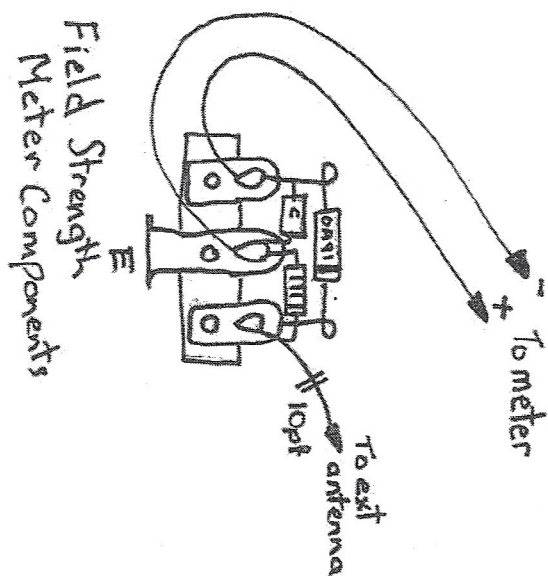
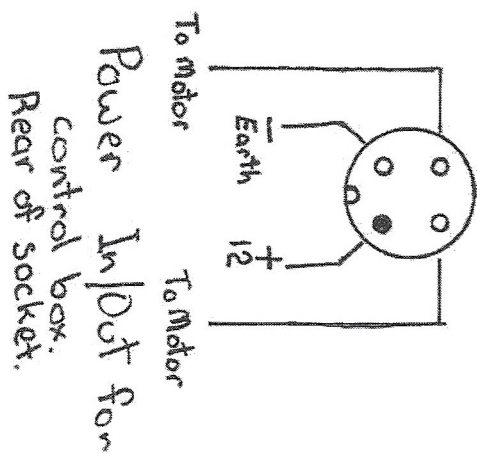
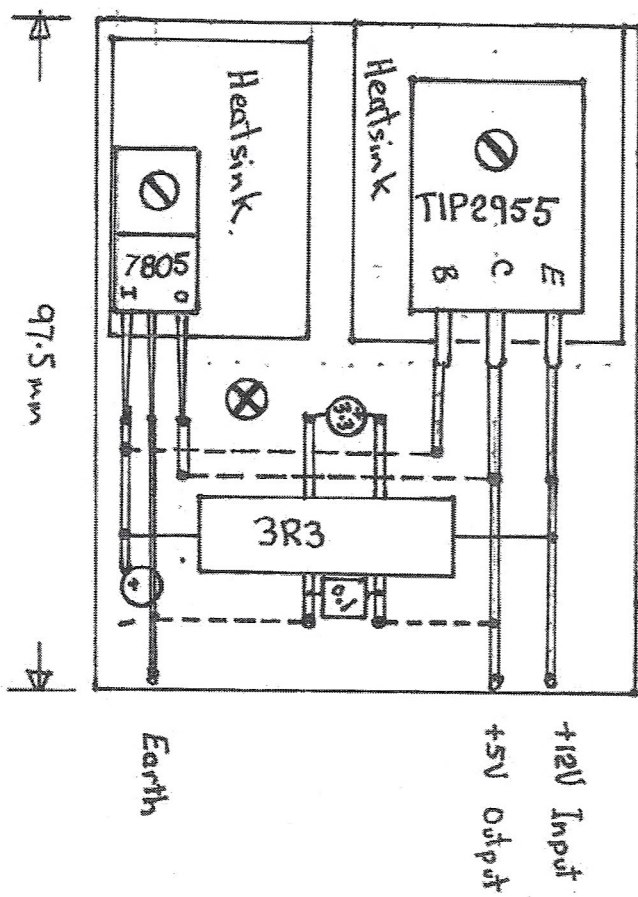
IRLP Node 6310 using VK3RWA

CLUB e-mail vk3bml@barg.org.au.

CLUB NET VK3BML 3.610+/- QRM Thursday Nights at 8 pm E.S.T (Summer & Winter)

NEWS ITEMS Send to Gordon VK3FGC (e-mail the club) mail to Box 1261 Mail Centre
BALLARAT 3354





PCB-Verseboard for
ScrewdriverAnt
Control box
VK3CME Jun 04

Scale 2:1

